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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/974,056

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Jian-Hsing Lee

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EXAMINER

NADAV, ORI

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/974,056

Applicant(s)

LEE ET AL.

Examiner

ori nadav

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2811

DETAILED ACTION

Claim Objections

Claim 7 is objected to because of the following informalities: Claim 7 recites the limitation "the first doping region" in line 13. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification recites a guard ring 20 formed outside first well 12. There is no support in the specification for a first well comprising a guard ring, as recited in claim 9.

Art Unit: 2811

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed limitations of each of the MOS FETs has a drain region of the first conductivity type, directly connected to a pad, as recited in claim 8, is unclear as to whether each of the MOS FET's or the drain region is directly connected to the pad.

Claim Rejections - 35 USC ' 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 5-8, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chishiki (5,714,796) in view of Igarashi (4,656,491) or Steudel (3,712,995).

Chishiki teaches in figure 7 and related text an ESD protection component, comprising: at least two MOS field effect transistors 29e, 27e (FETs) of a first conductivity type, having two gates and formed in parallel on a first semiconductive layer 21 having a second conductivity type; a first well 33 having

Art Unit: 2811

a first conductivity type, formed on the first semiconductive layer, comprising: a connecting area (part of well 33), formed between the MOS FETs; and a first doping area 26c of the second conductivity type, formed in the connecting area, wherein the first well is separated from the drains of the MOS FETs, wherein each of the MOS FETs has a source region 27a, 29a of the first conductivity type directly connected to a power rail, wherein the first well is electrically connected to a pad, and wherein the first doping region and each of the MOS FETs has a drain region of the first conductivity type directly connected to a pad (Vdd pad and I/O pad), and two drains of the first conductivity type.

Chishiki does not teach a first well comprising two parallel extension areas formed perpendicular to the gates of the MOS FETs.

Igarashi teaches in figures 2 and 5 a first well 12 and 31 comprising two parallel extension areas, respectively.

Steudel teaches in figure 4 a first well 69 comprising two parallel extension areas. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a first well comprising two parallel extension areas in Chishiki's device, in order to reduce the contact resistance of the device by enlarging the contact area of the first well.

Regarding the claimed limitation of extension areas formed perpendicular to the gates of the MOS FETs, the extension areas are formed in the semiconductor substrate and thus are perpendicular to the gates of the MOS FETs.

Art Unit: 2811

Regarding claim 6, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to connect the pad to the first well through the extension areas in order to reduce the contact resistance of the device by connecting the enlarged contact area of the first well to the pad.

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chishiki, Igarashi and Steudel, as applied to claim 1 above, and further in view of Ker et al. (6,072,219).

Chishiki, Igarashi and Steudel teach substantially the entire claimed structure, as applied to claim 1 above, except using a guard ring of the second conductivity type, wherein a first conductive layer is connected to a power supply through the guarding ring.

Ker et al. teach in figure 8 a guard ring P+ of the second conductivity type, wherein a first conductive layer (see figure 7) is connected to a power supply through the guarding ring.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a guard ring of the second conductivity type, wherein a first conductive layer is connected to a power supply through the guarding ring in prior art's device, in order to provide better electrical isolation for the device.

Response to Arguments

Applicant's arguments with respect to claims 5-9 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2811

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(703) 308-8138**. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached at **(703) 308-2772**.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**



O.N.
January 11, 2004

ORI NADAV
PATENT EXAMINER
TECHNOLOGY CENTER 2800